AAR-100

Human Factors Newsletter # 01-13

(June 23, 2001 – July 6, 2001)

Free Flight Phase 1: At the request of the Free Flight Phase 1(FFP1) Human Factors Representatives, researchers from the William J. Hughes Technical Center (ACT-530) traveled to Washington, D.C. on June 26th to discuss current and future research on interoperability of FFP1 and FFP2 tools. The researchers presented the current status of their human factors analysis of the interoperability of Controller Pilot Data Link Communications (CPDLC), the User Request Evaluation Tool (URET), and Traffic Management Advisor (TMA). Plans were discussed for a collaborative human-in-the-loop simulation study. Also present were representatives from the Human Factors Division (AAR-100) and Mitre Corporation. (E. Stein, WJHTC)

Controller-Pilot Data Link Communications (CPDLC): Researchers from the William J. Hughes Technical Center (ACT-530) attended the July 5-6 Human Factors Functional Status Review on CPDLC research sponsored by the Integrated Product Team Leader for En Route Systems (AUA-200). The researchers presented the current status of their preparations to assess the need for controllers to receive a Logical Acknowledgement (LACK) of the cockpit's receipt of a CPDLC message. In addition to the AUA-200 Program Sponsor, representatives from the Data Link Branch (ACT-350), MITRE Corporation, and Hi Tech Corporation were also in attendance. (R. Sollenberger, WJHTC)

General Aviation: On June 28th , two presentations were made to AFS-800 and members of his staff regarding the status of two grants awarded to the University of Illinois. The first presentation was made by Dr. Henry Taylor on his investigation of the effectiveness of personal computers to meet recency of experience requirements among general aviation pilots. Ultimately, this extensive study supported earlier findings that identified the benefit of the Personal Computer-based Aviation Training Device (PCATD) and flight training device (FTD) in maintaining instrument proficiency and suggests that improvements may be possible for some pilots when these devices are used. Also noteworthy from this study was the observation that only 45 of 106 instrument current pilot subjects passed the initial Instrument Proficiency Check in the aircraft. Following Dr. Taylor, Dr. Douglas Wiegmann presented the analysis of general aviation fatal and non-fatal accidents since 1990 using the Human Factors Analysis and Classification System conducted with Dr. Shappell at CAMI. Significant among their findings was the observation that roughly 80% of all general aviation accidents are attributed at least in part to skill-based errors. Skill-based errors are associated with deficiencies in training and other

issues of proficiency and currency. Efforts are currently underway with AFS-800 to explore this issue with skill-based errors further. Notably, fatal accidents were four times more likely (roughly 40% of all accidents examined) to be associated with violations of the rules, than non-fatal accidents (only 10% of non-fatal accidents examined). Decision errors were associated with roughly 40% of both fatal and non-fatal accidents examined while perceptual errors were associated with roughly 10% of all accidents. (K. Williams, S. Shappell, CAMI)

Safer Skies: On June 29th, Drs. Wiegmann and Shappell presented the GA accident analysis described above to the General Aviation Data Improvement Team (GADIT), as part of the FAA's "Safer Skies" agenda. The GADIT is a group of government, industry, and general aviation organization representatives formed to recommend ways to: (1) improve current measures of general aviation activity; (2) improve the "richness" of data included in general aviation accident and incident reports; and (3) use alternate metrics for measuring general aviation safety. A report is available on the first task – the improvement of current measures of general aviation activity. This meeting was the "kickoff" for the second task. (S. Shappell, CAMI)

Runway Incursions: Drs. David Schroeder (CAMI) and Julia Pounds (CAMI) participated in a Human Factors Workshop on Runway Incursions organized by the Runway Safety Program (ATS-20) and the Office of the Chief Scientific and Technical Advisor for Human Factors (AAR-100) and held on June 27th at FAA headquarters. Participants in the workshop discussed runway incursions and the recently released report by Booz-Allen &Hamilton, Inc with Mr. William Davis, Director of the Runway Safety Program. Results of additional analyses of the runway incursion database were provided in response to questions concerning the overall outcomes. The group also reviewed other ongoing projects related to the agency goal of reducing the frequency and severity of incursions. Dr. Pounds presented an overview of JANUS, the human-in-the-system technique being developed to identify causal factors in aviation incidents. (D. Schroeder, CAMI)

Flight Simulator Motion Fidelity Requirements: The Volpe National Transportation Systems Center and NASA Ames Research Center are collaborating on a study that will examine the platform motion requirement for simulators used in training and evaluation of airline pilots. A previous experiment suggested that platform motion may not be needed, at least for the maneuvers tested, but concerns were raised on the quality of the platform motion provided by the presumably typical FAA qualified airline training and evaluation simulator used in the experiment. This study intends to eliminate these concerns by using the NASA Ames Level D 747-400 research simulator. The simulator motion cues will be configured jointly by NASA and the simulator manufacturer to provide as high a motion fidelity as possible within the device's capabilities. Also, the study will test whether the earlier results extend to a different pilot population and different maneuvers. (J. Burki-Cohen, VNTSC)

Data-Sharing Programs: Last week, the FAA announced issuance of a final rule "to protect voluntarily provided information from disclosure" as part of the agency's on-going effort to encourage the flow of more safety and security information. The rule is aimed at encouraging data sharing programs such as Flight Operations Quality Assurance (FOQA) "which use state-of-the-art flight data recorder technology to collect and analyze data on routine flights." As the news release points out, the airlines could collect data about everyday safety trends in their

operations and share it with the FAA. In turn, the FAA would use the data "to identify industry-wide safety trends, allowing the agency to more effectively target resources and correct potential safety problems." (G. Lavey. AOA-1). Note: for more information, please visit the FAA Web site at: http://www.faa.gov/apa/pr/

More information on human factors research can be found at the FAA Human Factors (AAR-100) web site: http://www.hf.faa.gov

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CALENDAR

July 8-11, 2001 – ATCA 12th Annual International Technical Conference & Exhibition, Conrad International Hotel, Dublin, Ireland http://www.atca.org/

August 5-10, 2001 – 9th International Conference on Human-Computer Interaction, New Orleans, LA http://hcii2001.engr.wisc.edu/

August 7-8, 2001 – Volpe National Transportation Systems Center National Symposia on Transportation: Enabling Technologies, US DOT Volpe Center, Cambridge, MA mailto:brewerl@volpe.dot.gov

August 16-19 – Taipei Aerospace Technology Exhibition, Taipei World Trade Centre, Taipei, Singapore http//www.taipeitradeshows.com.tw/etate

September 4-6, 2001 – MRO Europe 2001, Scottish Exhibition & Conference Centre, Glasgow, Scotland http://www.aviationnow.com/conferences

September 10-14, 2001 – Aerospace Congress & Exhibition By Aerospace North America and SAE, Washington State Convention and Trade Center, Seattle, WA mail to:kthomson@sae.org

September 18-20, 2001 – NBAA Annual Meeting and Convention, New Orleans, LA http://www.nbaa.org/

September 26-28, 2001 **–** Human Issues in Aviation Systems Symposium, Toulouse, France mailto:wise@db.erau.edu

October 8-12, 2001 – Human Factors and Ergonomics Society 45th Annual Meeting, Human Factors/Ergonomics: It Works, Minneapolis, MN http://www.hfes.org/

October 14-18, 2001 – Aerospace Expo 2001, Los Angeles Convention Center, Los Angeles, CA http//www.aviationnow.com/conferences

October 22-25, 2001- Annual Cabin Safety Research Technical Group Meeting, Taj Mahal Hotel and Casino, Atlantic City, NJ

November, 2001 – DOD Technical Advisory Group Meeting, San Diego, CA http://dticam.dtic.mil/hftag/

November 4-8, 2001 – ATCA 46th Annual International Program & Exhibits, Washington Convention Center, Wash, D.C. http://atca.org/

November 27-30, 2001 - The Third International Aviation Security Technology Symposium, Tropicana Resort & Casino, Atlantic City, NJ, sponsored by the FAA Aviation Security R&D Division and National Safe Skies Alliance. Symposium topics include: Trace Detection, Bulk Detection, Human Factors, Technical Integration, Operational Testing and Evaluation, Deployment, Aircraft Hardening, Emerging Technologies, and other related topics. http://www.safeskiesinternational.org/symposium_2001.htm

December 3-5, 2001 – MRO Asia 2001, Regal Hotel, Hong Kong http://www.aviationnow.com/conferences

December, 2001 – EUROCONTROL Air Traffic Management R&D Seminar, Santa Fe, New Mexico http://eurocontrol.fr/

September 23-27, 2002 – Human Factors and Ergonomics Society 46th Annual Meeting, Pittsburgh, PA http://www.hfes.org/

April 7-27, 2003 – Aviation World's Fair, Newport News/Williamsburg, VA http://www.worlds-fair.com/

Note: Calendar events in Italics are new since the last Newsletter

Comments or questions regarding this newsletter?
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